Demo: Accessible Places Finder/Scoring for People with Disabilities

1. Background: This demo aims to help people with disabilities to find accessible places in the state of Minnesota. Over 10% of the population in Minnesota report being disabled, and the percentage is even higher in senior populations. How to find a convenient and accessible place to live or travel to, is one of the most important issues for people with disabilities. Unfortunately, there’s no such application available.

2. Functionality and Data source: This app mainly implements two functionalities. First, user can input an address name, a zip code or a city name, then an “accessibility score” based on different features (details come later in this document) will be computed and returned to a user and a short summary report will be generated as well. Second, user can specify a specific geographical range (i.e., state, county or city), and the level of places to rank (i.e., county, city, or zip code), then the accessibility scores will be computed at the requested level of places and the ranked places will returned to the user. Some technical details about the ranking:

* Each feature that is involved in the ranking is given a 0 to 100 scale. Such scale should be a normalized z-score that is comparable to the average score
* Each feature is assigned a weight in the final scoring function. By default, the weight is set equal; but the weight can be adjusted by users
* The score computing is composed of online computation and offline computation.

Now we will explain the data resources and the features that will be used in ranking.

2.1 Housing data: This feature evaluates the availability of nearby affordable apartment, as well as the physical quality of houses. Proposed equation:



The US Department of Housing and Development provides a list of subsidized apartments:

<http://www.hud.gov/apps/section8/results.cfm?city_name_text=&county_name_text=&zip_code=&property_name_text=&client_group_type=&maxrec=20&state_code=MN&statename=Minnesota>

In addition, there’s a Physical Inspection Score released by state government and assigned to each apartment:

<http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/mfh/rems/remsinspecscores/remsphysinspscores>

2.2 Mobility: This feature combines three scores: walkability score, transit score as well metro mobility associability score. Proposed equation:



2.2.1 Walkability: We can request a walk score from

<https://www.walkscore.com/professional/api.php>

2.2.2 Access to Public Transit (only two cities in MN are provided with transit score, so we decide to remove it..): We can request a transit score from

<https://www.walkscore.com/professional/public-transit-api.php>

2.2.3 Access to Metro Mobility: Metro mobility is a shared public transportation service that is especially provided for people with disabilities. The following is the table of time schedule of metro mobility services by different communities in MN

<http://www.metrocouncil.org/Transportation/Services/Metro-Mobility/Service-Hours-By-Community.aspx?source=child>

We can compute a metro availability score from the metro mobility service

2.3 Safety. This feature measures the crime rate of nearby environment. Proposed equation:



Minnesota Department of Public Safety provides an annual crime report:

<https://dps.mn.gov/divisions/bca/bca-divisions/mnjis/Pages/uniform-crime-reports.aspx>

2.4 Health and Special Services. People with disabilities generally need more special health care and services, which can help them to live a better life. Therefore, one advantage of a location is its closeness to hospitals, health centers or some special disabilities organizations. Proposed equation:



Minnesota Department of Health provides a list of hospitals (around 200) in MN:

<http://www.health.state.mn.us/divs/hpsc/dap/hccis/stndrdrpts.htm>

In addition, there’s a list of disability organizations in MN:

<http://www.pacer.org/parent/php/PHP-c36.pdf>

So, when the apartments are ranked, the distance to the above hospitals or organizations can be considered as well.

2.5 Disability Community. Needs more investigation…

<http://api.census.gov/data/2013/acs5/variables.html>

Disability: B18101

3. Summary: Using this app, people with disabilities are able to extract two important piece of information: (1) Given a place, compute the accessibility score for this place and give textual summary; (2) Given a geographical region, rank the sub-level places in terms of accessibility score. If input is None, the sub-level places are “counties” or “cities”; If input is a county, the sub-level place are “cities”; if input is a city, the sub-level places are “census tract” or “zipcode”(?? Not decided yet). Now CitySDK provides the following sub-level geo-request:

(1) level: place (i.e. city) or county, container: state (NOT county). Return all cities or counties within a state. Not able to return all cities within a county

(2) level: tract, container: place (i.e. city, or county). Return all tracts within a place or a county

Snapshot of Demo:







